

Exhibit F

Environmental Consequences of USACE ETL 1110-2-571 Compliance

April 11, 2012

Implementing the ETL would have significant impacts to terrestrial and aquatic habitats and numerous species of special concern. Implementation would require removal of all woody vegetation on both landside and waterside levee slopes throughout the entire system. The impacts would be severe to California's fish and wildlife resources that evolved in the complex and diverse natural communities residing in once vast riparian forests and adjacent riverine ecosystems of the Central Valley. Currently, numerous California fish and wildlife species are listed as state or federally threatened or endangered due to significant cumulative loss of habitat along riparian corridors, where mere remnants are now concentrated on the banks and levees of Central Valley flood channels.

Riparian vegetation communities within the Central Valley have been greatly reduced in extent and quality. Katibah (1984) estimated that 102,000 acres of riparian forest remained in the Central Valley, or about 11 percent of the pre-1850 habitat. He also estimated that of this area, 49,000 acres were in "disturbed and/or degraded" condition. The Bay Institute (1998) concluded, based on 1993 DFG GIS data, that approximately 56,000 acres of riparian forest remains, or approximately 6 percent of the pre-1850 acreage. Other ecologically significant characteristics, in addition to acreage loss, must also be considered such as connectivity, complexity, proximity to waterways and landscape context (proximity to other riparian vegetation). These characteristics are important in understanding the resource value of riparian vegetation to be impacted by the proposed policy. Much of the remaining riparian habitat is highly fragmented or occurs as narrow strips along waterways. Habitat quality has been further degraded as the result of invasive plant species occurring in riparian habitats, such as saltcedar (*Tamarix* spp.) and giant reed (*Arundo donax*). The California Department of Fish and Game considers riparian communities "special status natural communities".

Riparian systems are one of our most important and most neglected, renewable natural resources, providing high value wildlife habitat. Riparian ecosystems harbor the most diverse bird communities in the arid and semiarid portions of the western United States (Dobkin 1994, Knopf et al. 1988, Saab et al. 1995). Over 135 species of California birds such as the willow flycatcher, yellow-billed cuckoo and least Bell's vireo either completely depend upon riparian habitats or use them preferentially at some stage of their life history. Riparian habitat provides food, nesting habitat, cover and migration corridors. Another 90 species of mammals, reptiles, invertebrates and amphibians such as California red-legged frog, valley elderberry longhorn beetle and riparian brush rabbit depend on California's riparian habitats (RJHV 2012). The USFWS Mitigation Policy has classified shaded riverine aquatic habitat as Resource Category 1 because substantial amounts of this rich and diverse habitat have been lost along the Sacramento River, primarily from levee construction and installation of rock revetment (Fris and Dehaven 1993). The criterion for designating habitat in Resource Category 1 is identified as

habitat that is of high value for evaluation species and is unique and irreplaceable on a national basis or in the ecoregion section that could be affected. The mitigation goal for habitat in Resource Category 1 is “no loss of existing habitat value” (DWR 2012).

Riparian habitat also provides riverbank protection, erosion control and improved water quality, as well as numerous recreational and aesthetic values (RJHV 2012). Riparian vegetation also supplies in-stream habitat when downed trees and willow mats scour pools and form logjams important for fish, amphibians and aquatic insects. The National Research Council (2002) concluded that riparian areas perform a disproportionate number of biological and physical functions on a unit area basis and that the restoration of riparian function along America’s water bodies should be a national goal.

Aquatic species heavily dependent on riparian habitat and the functions it provides include several state and/or federally listed fish, which are listed in the table below. Loss of riparian connectivity and the functions provided to aquatic ecosystems cannot be mitigated, especially where this habitat is already limited in area and quality. The precarious state of these species have already affected the way that critical levee repairs are done through ESA consultations requiring vegetation, instream woody material and other habitat features to be incorporated into levee repair designs for the purposes of mitigating and compensating for impacts to habitat from levee repairs (USACE 2004). The following table provides information on the listing status, the likely impacts of implementing the ETL, potential population effects and implications of implementation on example species. Implications include potential for new species to be listed, ESA consultations to result in jeopardy and inability to meet recovery goals.

Species		Federal Status	State and/or CNPS Status	Effect of Implementing ETL on Habitat	Potential Population Effect	Implications
Delta button-celery	<i>Eryngium racemosum</i>	None	E	Potential for direct loss with removal and disturbance following colonization of non-native plants that threaten this species	Increased competitive pressures from non-native plants; impacts could further reduce populations	Could result in need to list federally
Woolly rose mallow	<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>	None	None/CNPS 1B	Potential for direct loss with removal and disturbance following colonization of non-native plants that threaten this species	Most populations are extremely small consisting of one or few individuals; loss of vegetation could further reduce populations	Could result in need to list species
Delta tule pea	<i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	None	None/CNPS 1B	Potential for direct loss with removal and disturbance following colonization of non-native plants that threaten this species	Most populations are small; loss of vegetation could further reduce populations	Could result in need to list species
Mason's lilaeopsis	<i>Lilaeopsis masonii</i>	None	R/CNPS 1B	Potential loss of riparian woody debris that may provide substrate for natural recruits	Reduction in woody debris could result in reduced potential habitat	Unknown
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	T	None	Loss of reproductive sites	Potentially significant population impacts	Would require USFWS consultation unless delisted

Species		Federal Status	State and/or CNPS Status	Effect of Implementing ETL on Habitat	Potential Population Effect	Implications
Southern Distinct Population Segment of North American green sturgeon	<i>Acipenser medirostris</i>	T	CSC	Potential loss of riparian nutrients and terrestrial prey input that may contribute to juvenile diet	Unknown	Unknown
California Central Valley steelhead DPS	<i>Oncorhynchus mykiss</i>	T	None	Mainstem juvenile rearing and outmigration habitat impacts include loss of: shade, cover, riparian, large wood, and nutrient input	Significant impacts to juvenile rearing and outmigration habitat likely to have strong negative effect on populations	Could result in more biological opinions resulting in jeopardy
Central Valley fall- and late fall -run Chinook salmon ESU	<i>Oncorhynchus tshawytscha</i>	Species of concern	None	Mainstem juvenile rearing and outmigration habitat impacts include loss of: shade, cover, riparian, large wood, and nutrient input	Significant impacts to juvenile rearing and outmigration habitat likely to have strong negative effect on populations	Could result in need to list species
Central Valley spring-run Chinook salmon ESU	<i>Oncorhynchus tshawytscha</i>	T	T	Mainstem juvenile rearing and outmigration habitat impacts include loss of: shade, cover, riparian, large wood, and nutrient input	Significant impacts to juvenile rearing and outmigration habitat likely to have strong negative effect on populations	Could result in more biological opinions resulting in jeopardy

Species		Federal Status	State and/or CNPS Status	Effect of Implementing ETL on Habitat	Potential Population Effect	Implications
Sacramento River winter-run Chinook salmon ESU	<i>Oncorhynchus tshawytscha</i>	E	E	Mainstem juvenile rearing and outmigration habitat impacts include loss of: shade, cover, riparian, large wood, and nutrient input	Significant impacts to juvenile rearing and outmigration habitat likely to have strong negative effect on populations	Could result in more biological opinions resulting in jeopardy
Delta smelt	<i>Hypomesus transpacificus</i>	T	E	Potential loss of riparian instream wood input that may provide substrate for spawning. Riparian nutrient input may also be important for juvenile rearing	Effect on populations likely to be small	Unknown
Longfin smelt	<i>Spirinchus thaleichthys</i>	None	T	Potential loss may include riparian nutrients and terrestrial prey input that may contribute to juvenile diet	Unknown	Unknown
Sacramento splittail	<i>Pogonichthys macrolepidotus</i>	None	CSC	Potential loss of riparian vegetation that is important for spawning and juvenile rearing habitat	Moderate negative impacts to spawning and rearing habitat likely to have a measureable effect on populations	Could result in need to list species
Hard head	<i>Mylopharodon conocephalus</i>	Sensitive species (USFWS)	CSC	Potential loss of riparian vegetation and large wood input that are important for juvenile and adult cover	Moderate negative impacts to juvenile and adult habitat likely to have a measureable effect on populations	Could result in need to list species

Species		Federal Status	State and/or CNPS Status	Effect of Implementing ETL on Habitat	Potential Population Effect	Implications
Pacific lamprey	<i>Entosphenus tridentatus</i>	None	None	Potential loss of riparian vegetation and large wood input that may contribute to juvenile rearing habitat	Unknown	Unknown
River lamprey	<i>Lampetra ayresii</i>	None	CSC	Potential loss of riparian vegetation and large wood input that may contribute to juvenile rearing habitat	Unknown	Unknown
Swainson's hawk	<i>Buteo swainsoni</i>	None	T	Potential loss of active nests; loss of nest sites; loss of foraging habitat	Effects on regional population likely significant due to importance of riparian areas providing nesting habitat	CESA consultation: necessitating minimizing take and fully mitigating impacts
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	Candidate	E	Potential loss of active nests; loss of nest sites; loss of foraging habitat	Regional population very small; any impacts significant	Could result in CESA jeopardy determination and no take permit issuance
Willow Flycatcher	<i>Empidonax traillii</i>	None (outside range of federally listed taxon)	E	Loss of migratory stopover foraging habitat; primarily extirpated as breeder, may possibly breed in small numbers	Not likely to be significant	Potential CESA consultation

Species		Federal Status	State and/or CNPS Status	Effect of Implementing ETL on Habitat	Potential Population Effect	Implications
Least Bell's vireo	<i>Vireo bellii pusillus</i>	E	E	Potential loss of active nests; loss of nest sites; loss of foraging habitat; taxon re-occupying Central Valley portions of former range	Effects on regional population (anticipated to continue to recolonize project area) likely significant due to importance of riparian areas providing nesting habitat	FESA and CESA consultation
White-tailed kite	<i>Elanus leucurus</i>	None	FP	Potential loss of active nests; loss of nest sites loss of foraging habitat	Effects on regional population may or may not be significant	Take permit issued only through NCCP process
Llong-eared owl	<i>Asio otus</i>	None	CSC	Loss of breeding and foraging habitat	Effects on regional population may or may not be significant	None
Yellow warbler	<i>Setophaga petechia</i>	None	CSC	Loss of breeding and foraging habitat	Effects would likely be significant due to the limited regional and declining population size	May increase chance of listing at State level
Yellow-breasted Chat	<i>Icteria virens</i>	None	CSC	Loss of breeding and foraging habitat	Riparian obligate: effects on regional population likely significant	None

Species		Federal Status	State and/or CNPS Status	Effect of Implementing ETL on Habitat	Potential Population Effect	Implications
"Modesto" song sparrow	<i>Melospiza melodia</i>	None	CSC	Loss of breeding and foraging habitat	Effects on population likely significant	Potentially could result in listing; taxonomic clarification needed
Riparian brush rabbit	<i>Sylvilagus bachmani riparius</i>	E	E	Loss of obligatory habitat	Very small population could be severely impacted	Possible jeopardy determination; no incidental take permit issuance
Ringtail	<i>Bassariscus astutus</i>	None	FP	Loss of breeding and foraging habitat	Effects on regional population may or may not be significant	Take permit issued only through NCCP process
Riparian woodrat	<i>Neotoma fuscipes riparia</i>	E	CSC	Loss of obligatory habitat	Very small, fragmented population could be severely impacted	Possible jeopardy determination; no incidental take permit issuance

T = Threatened, E = Endangered, R = Rare, CSC = California Species of Special Concern, FP= Fully Protected

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Surface Water Resources Inc (SWRI). 2003. Oroville FERC Relicensing (Project No. 2100) - Interim Report - SP-F3.2 Task 2 - SP-F21 Task 1 - Appendix A: Matrix of Life History and Habitat Requirements for Feather River Fish Species - Literature Review of Life History and Habitat Requirements for Feather River Fish Species - Hardhead.

Secondary Effects

Soil Erosion

The complex matrix of roots associated with riparian habitat provides important soil stability functions. The large network of roots serves to hold soils in place particularly during flood events when sheer stresses can rapidly erode soils that are not protected. Removal of riparian habitat per the ETL will subject the levees to erosion associated with river flows. This erosion will serve to impact water quality by increasing turbidity and decreasing available dissolved oxygen, which is of critical importance to many of the fisheries resources present.

Soil erosion associated with riparian vegetation removal could also have significant impacts to flood conveyance and maintenance requirements. Levee and bank soil erosion will increase deposition of sediment in downstream reaches, reducing the capacity within the channels to convey flood flows. This could potentially result in increased need for sediment removal. In addition, soil erosion would impact the integrity of the levees likely resulting in costly levee repairs.

Invasive Plant Species

The removal of riparian habitat per the ETL under the proposed Policy Guidance Letter would create conditions suitable for the invasion and establishment of invasive plants. As a result, the removal of riparian habitat would likely convert existing habitat dominated by native species to habitats dominated by non-native species. Invasive plants often out-compete natives, reduce or eliminate native species recruitment and provide food and structure for non-native wildlife species (Bossard et al. 2000). Overall, the spread of invasive species is considered to be one of the world's greatest threats to biological diversity (Bossard et al. 2000), as they substantially alter ecosystem function and displace native species and the organisms that depend on them (Cal-IPC 2004, Tu et al. 2001). In the United States, invasive plants are considered the second-greatest affect to endangered species after habitat destruction (Cal-IPC 2011). Thus, the removal of existing high-value riparian habitat will not only result in the loss of important habitat functions and values, but will also likely result in the conversion to habitat dominated by non-native species, a threat to biological diversity.

Loss of Structural Diversity

Natural riparian areas are dynamic systems characterized by complex interactions between hydrologic, geomorphologic and biotic factors. Riparian areas, even those bounded by levees, transport and deposit sediment to form geomorphic features that support a mosaic of connected, early to late successional plant communities. The diverse age structure associated with dynamic riparian habitats creates numerous ecological niches that support a large number of common and rare species. Plant communities within riparian zones are diverse, both in species composition and structure. They are composed of trees, shrubs, herbaceous plants and vines that form a matrix of canopy layers. Vegetation directly adjacent to waterways (shaded riverine aquatic) often has the highest, most complex habitat value due to its proximity to the water. This compositional and structural diversity contributes to the overall ecological functions and values of riparian zones that include energy flow, nutrient cycling, shaded riverine aquatic

cover and wildlife habitat, among others. The high ecological values associated with this structural diversity will be lost with the removal of riparian habitat. Removal of riparian vegetation could transform the remaining fraction of a complex and dynamic ecosystem to a structurally simple and highly degraded habitat dominated by non-native species.

Conclusion

In a letter of response to the Central Valley Flood Protection Board on DWR's 2012 Public Draft Central Valley Flood Protection Plan, dated April 2, 2012 (attached to this Exhibit), regarding the removal of vegetation from levees that would result from implementing the USACE ETL 1110-2-571 Maria Rea (Supervisor, NOAA Fisheries, Central Valley Office) states:

"CV levee vegetation has significant ecosystem importance. Vegetation along levees provides critical fishery habitat and is ecologically significant to numerous ESA listed and protected species, including the Sacramento River winter-run Chinook salmon, CV spring-run Chinook salmon, California CV steelhead, and North American green sturgeon (*Acipenser medirostris*). Enhancement of the remaining riparian corridors and providing connectivity is necessary and vital for the survival and recovery of listed fish species. The removal of levee vegetation will also have negative consequences for California Department of Fish and Game (DFG) and U.S. Fish and Wildlife Service (FWS) listed species."

". . . direct loss of vegetation as a result of implementing the USACE vegetation policy . . . would lead to significant negative impacts to the environment, ecosystems, and numerous plant, fish, and wildlife species . . . Any large scale removal or significant net loss of riparian vegetation as compared to baseline conditions will not be mitigable. This situation could result in permitting difficulties which leads to project delays and increased costs. The potential for jeopardy biological opinions also exists."

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
 NATIONAL MARINE FISHERIES SERVICE
 Southwest Region
 650 Capitol Mall, Suite 5-100
 Sacramento, CA 95814-4700

APR 2 2012

Jay S. Punia, P.E.
 Executive Officer
 Central Valley Flood Protection Board
 3310 El Camino Avenue, Room 151
 Sacramento, California 95821

Dear Mr. Punia:

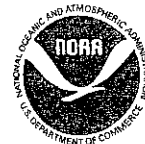
This letter is in response to the Central Valley Flood Protection Board's (CVFPB) and California Department of Water Resources' (DWR) release of the 2012 Public Draft Central Valley Flood Protection Plan (CVFPP) and Attachments. As part of the public review process, NOAA's National Marine Fisheries Service (NMFS) is providing comments to be included as part of the record and for consideration by the CVFPB prior to adoption of the CVFPP in July 2012. The comments are focused on the main document and Attachment #2: Conservation Framework (CF). The draft CVFPP and CF were developed by DWR and in part fulfills terms of the State of California's 2008 Central Valley Flood Protection Act. The CVFPP is to be updated every five years with the next update occurring in 2017. By 2017, a more comprehensive Conservation Strategy will be completed and will replace the 2012 CF. The CVFPP encompasses the Systemwide Planning Area (SPA) which contains most river channels and floodplains of the Sacramento and San Joaquin rivers and their major tributaries. The main objective of the CVFPP is to provide protection to high risk communities from flood events by meeting a 200 year flood protection in urban areas and small communities.

The Federal lead for the CVFPP is the U.S. Army Corps of Engineers (USACE), and the state leads are DWR and the CVFPB. In addition to completing the CVFPP, the lead agencies will also be fulfilling requirements as for Section 14 of the Rivers and Harbors Act (known as Section 408), and Section 404 of the Clean Water Act, and the Federal and state Endangered Species Acts (ESA).

NMFS has reviewed the information provided with the draft CVFPP. Some comments on the draft CVFPP and CF (found below) are general in nature, others relate to specific language in the draft CVFPP and CF.

VEGETATION REMOVAL AND VARIANCE COMMENTS

NMFS encourages incorporating environmental stewardship as part of the CVFPP and CF. This can reduce flood project regulatory delays, lower long-term operational costs, provide greater benefits to the public, restore ecological functions, and assist in the recovery of listed species. In particular, NMFS' Public Draft Recovery Plan for the evolutionarily significant units of the



Sacramento River winter-run Chinook salmon (*Oncorhynchus tshawytscha*), Central Valley (CV) spring-run Chinook salmon (*O. tshawytscha*), and the distinct population segment of California CV steelhead (*O. mykiss*), discusses improving and connecting existing riparian corridors as a priority recovery action.

CV levee vegetation has significant ecosystem importance. Vegetation along levees provides critical fishery habitat and is ecologically significant to numerous ESA listed and protected species, including the Sacramento River winter-run Chinook salmon, CV spring-run Chinook salmon, California CV steelhead, and North American green sturgeon (*Acipenser medirostris*). Enhancement of the remaining riparian corridors and providing connectivity is necessary and vital for the survival and recovery of listed fish species. The removal of levee vegetation will also have negative consequences for California Department of Fish and Game (DFG) and U.S. Fish and Wildlife Service (FWS) listed species.

Some draft CVFPP alternatives will result in a direct loss of vegetation as a result of implementing the USACE vegetation policy. NMFS agrees that this would lead to significant negative impacts to the environment, ecosystems, and numerous plant, fish, and wildlife species. NMFS recommends pursuing a formal vegetation variance or project alternatives (such as setback levees) that avoid the removal of waterside vegetation. Any large scale removal or significant net loss of riparian vegetation as compared to baseline conditions will not be mitigable. This situation could result in permitting difficulties which leads to project delays and increased costs. The potential for jeopardy biological opinions also exists. The CVFPP needs to propose how vegetation will be replaced in areas where it will be removed as part of the USACE Engineering Technical Letter 1110-2-571 "Guidelines For Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams, and Appurtenant Structures" adopted April 10, 2009 (ETL). It is important to note that any removed vegetation as part of the CVFPP will need in-place and in-kind replacement.

Aside from the possibility of a variance, the draft CVFPP offers little detail regarding how a project applicant will mitigate for resource impacts from implementation of the ETL. The final CVFPP should include a thorough mitigation plan in the event of full implementation of the ETL and in the absence of a variance.

STANDARDIZED ASSESSMENT METHODOLOGY (SAM) COMMENTS

The SAM is a modeling and tracking tool developed by Stillwater Sciences and was originally used by the USACE's analysis of the Sacramento River Bank Protection Project. The SAM evaluates bank protection alternatives affecting threatened and endangered fish species. The CVFPP should contain an analysis using SAM when specific projects are developed. That analysis should include the removal of any shaded riverine aquatic (SRA) habitat. NMFS recommends that prior to, and during the process of any construction that the project applicant use SAM to evaluate the response to habitat features affected by bank protection projects. By identifying and quantifying the response of fish species to habitat conditions over time, users can determine necessary measures to avoid, minimize, or fully compensate for fish impacts for various life stages.

SAM has been used at numerous levee sites along the mainstem Sacramento River and San Joaquin River. Modeling outcomes revealed long-term habitat losses and their impact on listed fish. SAM also demonstrated the need for commensurate compensation measures and habitat enhancement such as: installing in-stream wood material for habitat complexity, planting riparian vegetation to stabilize the bank, and providing a source of shade and cover for channel margin habitat.

MITIGATION COMMENTS

The draft CVFPP contains an analysis of costs for various alternatives and options, including those that were considered but eliminated from further consideration. In this analysis, and elsewhere in the CVFPP, there is only generic discussion on potential mitigation costs. This is understandable as the draft does not have a specific list of proposed projects. However, mitigation costs can be significant and can play a major role in overall project costs. Implementation of the ETL may result in large-scale vegetation removal and will have high mitigation costs when compared to alternatives that maintain baseline vegetation conditions. For full disclosure, a hypothetical discussion of proposed project impacts and mitigation for those impacts and estimates of mitigation costs should be included in the analysis as part of the final CVFPP and Conservation Strategy.

The CVFPP should also include a discussion on what plans exist to mitigate for the potential for lost SRA habitat as a result of the potential removal due to ETL compliance. Not all impacts can be mitigated via mitigation banks. In area where setback levees will not occur and vegetation is to be removed, the CVFPP needs to contain a detailed plan on how to mitigate for these losses. The CVFPP should include a discussion of the potential implications of jeopardy biological opinions resulting from vegetation removal. This will add cost and time.

SETBACK LEVEES

An alternative that includes extensive setback levees should be considered as the preferred approach. NMFS feels that the preferred approach should be one that best protects, preserves, and enhances historic, cultural, and natural resources. If the CVFPP includes substantial areas of setback levees, it is possible that resource impacts could be decreased to less than significant or perhaps be considered beneficial. The CVFPP should make it clear that the project applicant will need to fully explore funding opportunities to pay for the costs of constructing setback levees.

The potential exists to integrate setback levees along a substantial percentage of the SPA. The present detail about the type and list of projects that will be included in the implementation of the CVFPP, their potential impacts, and mitigation including a full cost-benefit analysis have yet to be reviewed or evaluated. Setback levees will reduce mitigation costs, reduce future costs in the event of a flood, reduce time and money spent during consultation with the resource agencies, and reduce future maintenance costs. Setback levees also provide other benefits, such as an increase in recreational opportunities.

Section 4.2.9 of the CF discusses the merits of setback levees. NMFS acknowledges that the initial cost of setback levees is normally more costly than in-place levee repairs. The construction of new setback levees within the flood management system would provide multiple benefits both by improving ecosystems as well as improving flood control. Setback levees would allow for the retention of all levee vegetation. The preservation of SRA habitat in particular is of great importance for the recovery of listed fish species. From a flood management prospective, setback levees can reduce the overall flood risk of an area, potentially leading to a huge cost savings in the event of a flood. NMFS strongly encourages DWR and CVFPB to further explore the possibility of setback levees as part of the CVFPP and to fully explore all potential funding available for their construction. Furthermore, setback levees may still allow for agricultural use, thus preserving tax dollars for the respective counties.

BYPASS EXPANSION

NMFS supports the objective of the CVFPP to expand and create more floodplain habitat. The proposed bypass expansions should be engineered and designed to allow for adequate drainage after high flows have subsided in order to prevent fish entrainment from occurring. Any bypass expansion should be designed in order to avoid the introduction of fish barriers and should allow for unimpeded fish migration. Numerous studies have demonstrated that both aquatic and terrestrial ecosystems benefit from dynamic connectivity between rivers and their floodplains. Salmonids benefit by having access to the floodplain for foraging, spawning, and as a refuge from high velocities found in the river during high flow events (Moyle *et al.* 2007). Seasonal floodplain habitats have been shown to support higher growth rates for juvenile Chinook salmon than permanent in river habitats (Jeffres *et al.* 2008).

GOVERNANCE COMMENTS

The CVFPP and the CF discuss conservation and advanced mitigation as key components to the overall plan. NMFS supports this idea as it can help expedite project development and the permitting process. However, the CVFPP and CF do little to define how the conservation and mitigation projects will be funded and offers little assurance regarding the completion of these projects. There is mention of the Flood System Financing Plan, but detail on how funds will be appropriated for conservation and mitigation are lacking.

The CVFPP does not discuss the process for how resource conservation will be developed and implemented. At a minimum, the final CVFPP should have a general discussion on how conservation actions will be funded, what assurances will be provided to ensure completion, how they will be developed, and how they will be managed in the long-term. In order for conservation and mitigation actions to be successful, there needs to be money and a plan for long-term management and the ability to adaptively manage the resource.

SPECIFIC COMMENTS

2012 Public Draft CVFPP

Throughout the document it is stated that without the levee repairs and upgrades flood risk will continue. While NMFS agrees with this statement, it is important to note that even with the improvements that are a part of the proposed CVFPP, there will still be potential flooding and risk of levee failure in the proposed project area; this should be clearly stated in the final CVFPP.

Page 1-7: Is there a measure of the buildup of sediment in the Sacramento Basin over time since the gold mining began? What is the present accrual of sediment since these operations have stopped?

Page 1-26: Expand the primary goal to include "environmental" safety in addition to human and property safety. The concept of environmental safety would include added measures to protect the health of the environment.

Page 4-14: The Life Cycle Management (LCM) strategy helps to protect large woody vegetation on levee systems only for the near future. In the future this strategy will result in a loss of riparian habitat in the CV. The LCM strategy will ultimately result in a vast reduction of SRA habitat, as the major source for vegetative recruitment will be removed, thus eliminating vegetation. This will lead to a disruption in the food web productivity and consequently result in a decrease of invertebrates available for listed fish species, as well as contributing to numerous other negative impacts to both aquatic and terrestrial species.

Page 4-16: It is stated, "as the SSIA is implemented, some features of the SPFC may prove to be obsolete and slated for removal, while other features may be added". NMFS and other Federal and state resource agencies will need to be consulted if any features that pertain to ecological restoration are slated to be removed or added.

Page 4-26: It is indicated, "one of the programs actions will be to isolate, stabilize or remove mercury and other heavy metals, polychlorinated biphenyles, and other long-lasting ecosystem contaminants." How will this be achieved? The techniques should be stated.

Page 4-27: It is specified, "the 2017 CVFPP update will be prepared in close coordination with USACE". Coordination should occur with the Resource and Regulatory Agencies during the 2012 CVFPP and Conservation Strategy update. It would benefit DWR to have all other agencies involved in close discussions.

Page 4-32: It is stated, "continued engagement with partners and stakeholders will occur." The continued engagement and coordination with the Resource and Regulatory Agencies should be added here.

Table 4-1: Cost estimates for ecological restoration should be included.

Table 4-2: This should include a map indicating each of the nine regions along with the estimated costs for that region's improvements.

Table 4-3: Estimates for ecological restoration need to be included.

Attachment 2: Conservation Framework

Page 1-7: It is stated, "environmental stewardship can reduce flood project regulatory delays, lower long-term operation and repair costs, provide greater public benefits, and strengthen public support". It should be added that environmental stewardship will help to restore ecological functions and have positive effects towards the recovery of listed species.

Page 2-12: In the second paragraph, changes to aquatic habitat are discussed. It should be added that when floodplains are inundated this also functions to slow river velocities, thus the loss of floodplain-river connectivity has resulted in increased river velocities.

Table 2-3: The state listing for delta smelt is incorrect. This fish species listing should be California listed as endangered and not threatened (1-20-2010).

Page 2-23: More should be added to the discussion of impacts from non-native species. It should be included that non-native fish species can prey on native fish and pose a threat to native species by competing with them for resources, such as food and habitat.

Page 4-14: It is advised that fish screens be added on all diversion structures.

Page 5-11: Develop and present information for suitable plants and trees for the lower waterside slope.

Page 5-19: Discuss how research on Best Management Practices would be carried out.

Page 5-28: Listed fish species should be included in the list of animal species.

This documents NMFS comments on the 2012 Public Draft CVFPP and CF. NMFS comments are intended to help guide the development of the final CVFPP and future ESA Consultations. If you have any questions regarding this correspondence contact Julie Wolford either by telephone at (916) 930-3710 or by email at Julie.Wolford@noaa.gov.

Sincerely,



Maria Rea
Supervisor, Central Valley Office

cc: Copy to file – ARN 151422SWR2011SA00378

NMFS-PRD, Long Beach, California

- cc: Benjamin F. Carter, President
Central Valley Flood Protection Board
3310 El Camino Avenue, Room 151
Sacramento, CA 95821
- cc: Jeremy Arrich, Chief
California Department of Water Resources
Central Valley Flood Planning Office
901 P Street, Room 411A
Sacramento, CA 95814
- cc: David Carlson
California Department of Water Resources
901 P Street, Room 411A
Sacramento, CA 95814
- cc: Marc Hoshovsky
Environmental Program Manager 1
California Department of Water Resources
Floodway Ecosystem Sustainability Branch, FloodSAFE
901 P Street, Room 411A
Sacramento, CA 95814

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